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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/521,778

**Applicant(s)**

KOMIYA ET AL.

**Examiner**

Mia M. Thomas

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 April 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 23-41 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 23-41 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 30 April 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date see attached  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office Action is responsive to the applicant's remarks received on 30 April 2008. Claims 1-22 are canceled. Claims 23-41 are new. Reconsideration of this application, as amended, is respectfully requested.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 23-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicant has indicated that no new matter has been added, and has respectfully requested that the amendments to the specification be approved and entered. In this instant application, the applicant has four (4) embodiments with corresponding Figures (Drawings). Although the applicant has attempted to show where each newly recited features were to be located in the original specification, the Examiner does not believe that the original specification complies (is supported by) with the newly "rewritten" claims. Specifically, the first aspect of the invention as re-written is only supported by the newly amendment specification recitation. There is no clear indication by way of the reading of the "claim remarks" (see page 21 and 22 of applicants remarks) as presented by the applicant nor by the examination performed by the Examiner that the applicant was in possession of the claimed invention at the time that the instant application was filed.

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**Regarding Claim** Claims 1-22: (Canceled)

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parluski (US 5,523,786 A) in combination with Feldman (US 2005/0084144 A1) and Murljagic (US 5766006 A).

**Regarding Claim 23:** As best understood by the Examiner (New) Parluski discloses an image processing system ("This invention relates to electronic cameras using solid state image sensors, and, in particular to color sequential electronic cameras." at column 1, line 8) comprising:

a photographing apparatus (Refer to abstract; "A color sequential electronic camera includes an RGB light source in which the R and G sources are activated in combination to provide a luminance light beam, and the R and B sources separately to provide separate chrominance light beams."

and a processing apparatus (Refer to Figure 3, specifically, numeral 52), wherein the photographing apparatus comprises: a plurality of light-emitting devices for emitting illumination light having characteristics of spectroscopic distributions varied in at least a visible light range (Refer to the "Abstract" and the "Field of the Invention"; Refer to Figure 3, numeral 26a-c; "A

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color sequential video imaging system...a plurality of differently-colored light sources for illuminating a subject..." at column 12, line 37);

an image pick-up optical system which forms a subject image of a subject illuminated by the light-emitting devices ("A color sequential video imaging system...; an optical section for collecting light from said sources reflected from the subject..." at column 12, line 37);

an image pick-up device unit which picks-up the subject image formed by the image pick-up optical system and outputs an image signal ("A color sequential video imaging system, comprising: a solid state image sensor positioned for receiving the reflected light collected by said optical section..." at column 12, line 4)

Feldman teaches a control unit which controls the photographing apparatus to capture images in one of a spectroscopic image capturing mode and a moving image capturing mode, selectively (Refer to paragraph [0077,0078] " Image processor 1314. Image processor provides Image Registration, using image registration software that recognizes the image separator on the two images, 1302 and 1304.");

Parlusi teaches wherein in the spectroscopic image capturing mode, the control unit controls at least a plurality of the plurality of light-emitting devices, which are selected according to the characteristics of the spectroscopic distributions of the light emitting devices, to sequentially light-on, and the control unit controls the image pick-up device unit to capture sequential spectroscopic still images of the subject simultaneously with the sequential lighting-on of the light-emitting devices ("The timing circuit 40 also controls the light emitting devices 26a, 26b,

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26c via the LED control device 28, and provides sync signals to the digital data link 24." at column 5, line 30);

Murijacic teaches wherein in the moving image capture mode, the control 25 unit one of: (i) controls a specific primary color of the light-emitting devices to light-on, and controls the image pick-up device unit to capture a moving image while the specific primary color of the light-emitting devices are lighted-on, and (ii) controls a plurality of groups of the light-emitting devices to sequentially light-on group by group, each of the groups including at least one of the light-emitting devices and the characteristics of the spectral distributions of each of the groups being different, and controls the image pick-up device unit to capture a moving image while the groups of the light-emitting devices are sequentially lighted-on ("The particular video driver (not shown) used to drive the monitor 44 specifies and controls the color and image display as appropriate. The RGB format specifies a color corresponding to signals which produce a suitable color picture on the monitor having the reference colors defined by the RGB chromaticities." at column 6, line 21).

Feldman teaches a calculating unit which performs an image calculation based on an output of the image pick-up device (For example, "With this modification, bores to be made in the drilling template 510 match the calculated computer representations." refer to paragraph [0087]).

Parlusi does not specifically teach/disclose a control unit for controlling the photographing apparatus to capture images. Parlusi also does not specifically disclose/teach a calculating unit for performing an image calculation based on an output of the image pick-up device.

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Parlusi, Feldman and Murljagic are combinable because they are in the same field of imaging, specifically with respect to dentistry and color sequential illumination. (See classification and abstract of each invention).

At the time that the invention was made, it would have been obvious to the skilled artisan to combine the aforementioned claimed elements because Feldman in the field of biomedical applications, aides the dental operation of Murljagic. Further the combination of Feldman and Murljagic would aid the color sequential camera of Parlusi to provide "to improve motion rendition with an electronic camera that is more sensitive to luminance temporal resolution than to chrominance temporal resolution." at column 2, line 3, also at column 1, line 14+ (Parlusi).

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Parlusi, Feldman and Murljagic. All of the claimed elements were known in the prior art and the skilled artisan could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to the skilled artisan at the time of the invention. Therefore, the combination of the claimed elements as taught/disclosed by the Parlusi, Feldman and Murljagic would have been obvious to combine to obtain the specified claimed elements of Claim 23.

6. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parlusi (US 5,523,786 A) in combination with Feldman (US 2005/0084144 A1) and Murljagic (US 5766006 A) and further in view of Mizumaki et al. (US 6,006,041).

**Regarding Claim 24: (New)**

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Parulski, Feldman and Murljadic in combination disclose/teach all the claimed elements as rejected above.

Parulski, Feldman and Murljadic in combination does not specifically teach a control unit sets a plurality of types of groupings of the groups of the light-emitting devices. However, Mizumaki teaches the control unit sets a plurality of types of groupings of the groups of the light-emitting devices, and in the moving image capture mode the control unit selects a type of grouping to be lighted-on in accordance with an application of the photographing apparatus (Refer to Figure 5; "FIG. 5 shows a control image of an LED light-on timing in the first embodiment of the invention." At column 2, line 39; "The light source 18 includes the LEDs 11 and 12 of FIG. 1. "The control circuit 19 controls a light-on timing of the light source 18 in accordance with the signal from the mask position detecting circuit 16 and the angular displacement information from the vibration detection circuit 17." at column 5, line 14).

Parulski, Feldman, Murljadic and Mizumaki are combinable because they are in the same field of imaging, specifically with respect to dentistry and color cameras with sequential illumination. (See classification and abstract of each invention).

At the time that the invention was made, it would have been obvious to the skilled artisan to utilize the control unit sets a plurality of types of groupings of the groups of the light-emitting devices, and in the moving image capture mode the control unit selects a type of grouping to be lighted-on in accordance with an application of the photographing apparatus.

The suggestion/motivation for doing so would have been "without changing the projecting direction irregularly or complicatedly, the index can be variously displayed."



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Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Parulski, Feldman, Murljagic and Mizumaki to obtain the specified claimed elements of Claim 24.

**Regarding Claim 25:** (New) Parulski teaches [in] the moving image capturing mode, the control unit controls the plurality of groups of the light-emitting devices to sequentially light-on group by group ("A color sequential electronic camera includes an RGB light source in which the R and G sources are activated in combination to provide a luminance light beam, and the R and B sources separately to provide separate chrominance light beams." at abstract); wherein the plurality of groups comprise a group of the light-emitting elements which emit blue light in the visible range a group of the light-emitting elements which emit red light in the visible light range, and a group of the light- emitting elements which emit green light in the visible light range ("The invention is based in part on the recognition that it is possible to turn on more than one color emitter during the sensor illumination period. This allows the camera to capture luminance frames, which are ordinarily defined as the weighted sum of red, green, and blue light." at column 3, line 29), and wherein in the moving image capturing mode, the control unit controls the image pick-up device unit to pick-up a frame of the moving image each time one of the groups is lighted-on, so as to capture a three-primary-color moving image (Refer to column 3, line 29-column 4, line 65).

7. Claims 26-27, 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski (US 5,523,786 A) in combination with Feldman (US 2005/0084144 A1) and Murljagic (US 5766006 A) and further in view of Williams (US 2003/0107652 A1).

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**Regarding Claim (New) 26:** Parulski, Feldman and Murljacic in combination disclose/teach all the claimed elements as rejected above.

Parulski, Feldman and Murljacic in combination does not specifically teach a photographing operating unit which inputs at least an instruction for starting a spectroscopic image photographing operation to capture the spectroscopic still images of the subject in the spectroscopic image capturing mode. However,

Williams teaches the photographing apparatus further comprises: a photographing operating unit which inputs at least an instruction for starting a spectroscopic image photographing operation to capture the spectroscopic still images of the subject in the spectroscopic image capturing mode (Refer to paragraph [0089]; specifically, "The grip 712 is provided with a self-reset type pushbutton 717 adapted to reciprocate by means of a spring 717A, an operation cycling mechanism 718 (intermittent rotation mechanism) adapted to rotate 1/N of a full rotation in one direction in response to one depression of the pushbutton 717, and an image pickup device moving mechanism 719 for moving the charge coupled device unit 715 along the optical path (direction indicated by an arrow P in the figure) as given a predetermined amount of displacement by the operation cycling mechanism 718.).

Parulski, Feldman, Murljacic and Williams are combinable because they are in the same field of imaging, specifically with respect to dentistry and color cameras with sequential illumination. (See classification and abstract of each invention).

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At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to utilize a photographing operating unit which inputs at least an instruction for starting a spectroscopic image photographing operation to capture the spectroscopic still images of the subject in the spectroscopic image capturing mode.

The suggestion/motivation for doing so would have been "By depressing the pushbutton 717 plural times (N times), the rotary cam 721 is rotated 360 degrees thereby causing the image pickup device moving mechanism 719 to resume its initial position." at paragraph [0089]. The position of the rotary camera would allow the operator a multitude of options for identifying the most appropriate means of execution.

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Williams with the combination of Parulski, Feldman and Murdjacic to obtain the specified claimed elements of Claim 26.

**Regarding Claim 27:** (New) Williams teaches a plurality of groupings of the groups of the light-emitting devices are set, the photographing operating unit comprises a pressing button switch, and the control unit changes a grouping to be lighted-on upon pressing of the button switch (Refer to paragraph [0091]; specifically, refer to Figure 22, numeral 717).

**Regarding Claim 29:** (New) Williams teaches the photographing operating unit includes a pressing button switch, and the control unit switches between the spectroscopic image capturing mode and the moving image capturing mode in accordance with pressing of the

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button switch (Refer to Figure 22, numeral 717-pushbutton switch for image pickup device 719 and Figure 1, numeral 37, external button switch).

**Regarding Claim 30:** (New) Williams teaches the image pick-up device unit comprises a color image pick-up device having a color filter array ("A suitable small charge coupled device camera system 524 is the 0.25" color charge coupled device cameras of Sony Corporation of Japan. This single chip includes the charge-coupled device and the electronics for producing a video signal from the output of the charge coupled device. The charge-coupled device can either provide black and white signals or color signals." at paragraph [0086]).

**Regarding Claim 31:** (New) Williams teaches at least one of the plurality of light-emitting devices has a characteristic of spectroscopic distribution extending between different bands of the color filter array (Refer to paragraph [0086]; specifically, "The charge-coupled device can either provide black and white signals or color signals.).

**Regarding Claim 32:** (New) Williams teaches the photographing apparatus further comprises: a spectrum sensor which senses the characteristics of the spectroscopic distributions of the light-emitting devices (Refer to paragraph [0086]; specifically, refer to Figure 17).

**Regarding Claim 33:** (New) Williams teaches the photographing apparatus further comprises: a spectrum sensor which senses a characteristic of spectroscopic distribution of ambient light ("The image sensor 933 is preferably either a charge coupled device (charge coupled device) or an APS (active pixel sensor array). The lens system 932 is located in the distal portion of the median section 912, proximal to the distal end of the hand-piece 911. The movable image

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sensor 933 is located proximal to the fixed lens system 932. The lens system 932 transmits the light arriving from the distal end of the hand-piece 911 to the active surface of the image sensor 933." at paragraph [0091]).

**Regarding Claim 34:** (New) Williams teaches the photographing apparatus further comprises: a display section for displaying an image based on the image signal outputted from the image pick-up device unit (Refer to paragraph [0090]; specifically, "A video output cable 16 extends from the proximal end of the grip portion 812 for connection with a display such as a monitor TV set. The light source 819 is a halogen lamp and can be exchanged easily.").

8. Claims 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parluski (US 5,523,786 A) in combination with Feldman (US 2005/0084144 A1) and Murljagic (US 5766006 A) and Williams (US 2003/0107652 A1) and further in view of Sundrehagen et al. (US 2002/0168784 A1)

**Regarding Claim (New) 28:** Parluski, Feldman, Murljagic and Williams in combination disclose/teach all the claimed elements as rejected above.

Parluski, Feldman, Murljagic and Williams in combination does not specifically teach the control unit controls light-on timings of the light-emitting devices of the groups of the changed grouping, upon pressing of the button switch.

However, Sundrehagen teaches the control unit controls light-on timings of the light-emitting devices of the groups of the changed grouping, upon pressing of the button switch (Refer to paragraph [0120]).

Parulski, Feldman, Murljadic, Williams and Sundrehagen are combinable because they are in the same field of imaging, specifically with respect to dentistry and color cameras with sequential illumination. (See classification and abstract of each invention).

At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to utilize the control unit to control the light-on timings of the LED's upon pressing the switch button.

The suggestion/motivation for doing so would have been to allow "the operator...to also select the area to be scanned and select whether bar codes (or other machine readable codes) are allowed and optionally he will also select which such codes are allowed." (at paragraph [0119], Sundrehagen).

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Parulski, Feldman, Murljadic, Williams and Sundrehagen to obtain the specified claimed elements of Claim 28.

9. Claims 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski (US 5,523,786 A) in combination with Feldman (US 2005/0084144 A1) and Murljadic (US 5766006 A) and Irwin (US 7,144,248 B2).

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**Regarding Claim 35: (New)**

Parulski, Feldman and Murljadic in combination disclose/teach all the claimed elements as rejected above.

Parulski, Feldman and Murljadic in combination does not specifically teach an abutting portion which is abutted to the subject at one end of the photographing apparatus. However, Irwin teaches an abutting portion which is abutted to the subject at one end of the photographing apparatus ("FIG. 7 shows a delivery device that forms a part of the apparatus depicted in FIG. 1..." at column 2, line 60; further refer to column 13, line 55).

Parulski, Feldman, Murljadic and Irwin are combinable because they are in the same field of imaging, specifically with respect to dentistry and color cameras with sequential illumination. (See classification and abstract of each invention).

At the time that the invention was made, it would have been obvious to the skilled artisan to utilize an abutting portion which is abutted to the subject at one end of the photographing apparatus

The suggestion/motivation for doing so would have been to utilize an abutting portion which is "removable from the wand 32 and disposable, or at least conveniently sterilizable, so that the wand itself is reusable indefinitely between multiple patients." These features create a medically safe and sterile environment for each patient.

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Parulski, Feldman, Murljadic and Irwin to obtain the specified claimed elements of Claim 35.

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**Regarding Claim 36:** (New) Irwin teaches the abutting portion comprises a flexible material with a cylindrical shape ("The optical apparatus...elongate member comprises a tube having a shape of a right circular cylinder." at column 38, line 42; further "Exterior details of the hand-held wand 32 are shown in FIG. 7. The wand 32 comprises an elongate, generally cylindrical body member 45 that includes a connecting end 48 and a delivery end 50." at column 13, line 55 ).

**Regarding Claim 37:** (New) Irwin teaches the abutting portion comprises a material which prevents or reduces influence of ambient light ("The conduit 3108 is a pipe or tube comprising four planar rectangular sidewalls 3110; see FIGS. 26A 26C. The rectangular sidewalls 3110 are joined together at a total of four edges 3112, each sidewall adjoined by two adjacent orthogonally disposed sidewalls at two edges. The conduit 3108 may be hollow or may be filled with a material that is preferably optically transmissive to the UV light." also refer to column 30, line 11).

**Regarding Claim 38:** (New) Irwin teaches the abutting portion is detachably coupled to a casing of the photographing apparatus (Refer to column 34, line 10).

10. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parluski (US 5,523,786 A) in combination with Feldman (US 2005/0084144 A1) and Murljagic (US 5766006 A) and Cable et al. (US 2005/0231592 A1).

**Regarding Claim 39:** (New) Parulski, Feldman and Murljagic in combination disclose/teach all the claimed elements as rejected above.



Parulski, Feldman and Murljacic in combination does not specifically teach a calculating unit with a color-reproduction calculating unit for calculating image data for displaying an image of the subject which is color-reproduced at a high fidelity level based on the spectroscopic still images stored in the image memory unit. However,

Cable teaches the processing apparatus further comprises an image memory unit which stores the spectroscopic still images photographed by the photographing apparatus in the spectroscopic image capturing mode ("The computer 28, which may be of any suitable type, typically comprises a main unit 36 that typically contains hardware including a processor, memory components such as random-access memory (RAM) and read-only memory (ROM), and disk drive components (e.g., hard drive, CD, floppy drive, etc.)." at paragraph [0047]); and wherein the calculating unit comprises a color-reproduction calculating unit for calculating image data for displaying an image of the subject which is color-reproduced at a high fidelity level based on the spectroscopic still images stored in the image memory unit (Refer to paragraph [0047]; specifically, "The computer 28 may also includes suitable processing hardware and software for the camera 20 such as additional imaging hardware, software, and image processing logic for processing information obtained by the camera 20. Components controlled by the computer 28 may include the camera 20, the motors responsible for camera 20 focus, the motors responsible for position control of a platform supporting the sample, the camera lens, f-stop, etc. The logic in computer 28 may take the form of software, hardware or a combination thereof. The computer 28 also communicates with a display 38 for presenting imaging information to the user. By way of example, the display 38 may be a monitor, which presents an image measurement graphical user interface (GUI) that allows the user to view imaging results and also acts an interface to control the imaging system 10.").

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Parulski, Feldman, Murljagic and Cable are combinable because they are in the same field of imaging, specifically with respect to dentistry and color cameras with sequential illumination. (See classification and abstract of each invention).

At the time that the invention was made, it would have been obvious to the skilled artisan to utilize calculating unit with a color-reproduction calculating unit for calculating image data for displaying an image of the subject which is color-reproduced at a high fidelity level based on the spectroscopic still images stored in the image memory unit.

The suggestion/motivation for doing so would have been "The computer 28 also communicates with a display 38 for presenting imaging information to the user." (Cable)

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Parulski, Feldman, Murljagic and Cable to obtain the specified claimed elements of Claim 39.

11. Claims 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parluski (US 5,523,786 A) in combination with Feldman (US 2005/0084144 A1) and Murljagic (US 5766006 A) and Cable et al. (US 2005/0231592 A1) and further in view of Sundrehagen et al. (US 2002/0168784 A1)

**Regarding Claim (New) 40:** Parulski, Feldman, Murljagic and Cable in combination disclose/teach all the claimed elements as rejected above.

Parulski, Feldman, Murljagic and Cable in combination does not specifically teach the color-reproduction calculating unit generates image data of XYZ tristimulus values.

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However, Sundrehagen teaches the color-reproduction calculating unit generates image data of XYZ tristimulus values ("The colors that we perceive and which are recorded are all the result of different  $x(\lambda)$ ,  $y(\lambda)$  and  $z(\lambda)$  proportions (stimuli) in the light received from an object. The resulting three values X, Y and Z being recorded are called tristimulus values." at paragraph [0037]),

and the calculating unit generates an input profile for generating the image data of the XYZ tristimulus values using at least one of illumination light spectrum data and characteristic data of the image pick-up device unit ("Different numerical expressions have been developed to express colour numerically. In a photometer/refractometer used in analytical chemistry to record colours and intensity, monochromators or multiple sensors are used to measure the spectral reflectance of the object at each wavelength or in each narrow wavelength range. Simpler instruments, like flat bed scanners, as previously described measure color by reflectance measurements only at the wavelengths corresponding to the three primary colors of light (red, green and blue). The three different reflectance values recorded (tristimulus values) can then be used to convert the data to colour spaces like the "Yxy", "L\*a\*b" or the "L\*c\*h" systems. Digital cameras and video cameras are also capable of producing a digital output for each pixel in a digital colour image composed of the X, Y and Z values (RGB values) for that pixel." at paragraph [0037]).

Parulski, Feldman, Murljagic, Cable and Sundrehagen are combinable because they are in the same field of imaging, specifically with respect to dentistry and color cameras with sequential illumination. (See classification and abstract of each invention).

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At the time that the invention was made, it would have been obvious to one of ordinary skill in the art to utilize the color-reproduction calculating unit generates image data of XYZ tristimulus values.

The suggestion/motivation for doing so would have been to allow "the output from such cameras may be used interchangeably with the output of a flat-bed scanner for the purposes of the invention." at paragraph [0047]

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Parulski, Feldman, Murljacic, Cable and Sundrehagen to obtain the specified claimed elements of Claim 40.

**Regarding Claim 41:** (New) Sundrehagen teaches the calculating unit determines or analyzes the subject based on at least one of the spectroscopic still images stored in the image memory unit (Refer to paragraph [0036]), and the calculating unit outputs a result of the determining or analyzing ("Digital cameras and video cameras are also capable of producing a digital output for each pixel in a digital colour image composed of the X, Y and Z values (RGB values) for that pixel. Thus, the output from such cameras may be used interchangeably with the output of a flat-bed scanner for the purposes of the invention." at paragraph [0037]).

***Response to Arguments***

12. Applicant's arguments see page 21 filed 30 April 2008 with respect to "The Priority Claim" have been fully considered and is hereby acknowledged herewith this response.

13. Applicant's arguments with respect to claims 23-41 have been considered but are moot in view of the new ground(s) of rejection. Claims 23-41 now "rewritten to more clearly recite features of the present invention in better U.S. form" have been fully considered. (See page 21 - 22 of applicant remarks.) Although the applicant cites multiple disclosure locations to support the newly recited claimed features the Examiner has rejected the claims based upon under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. As best understood by the Examiner, a prior art rejection is enclosed herewith this response to the applicant's remarks.

***Conclusion***

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mia M. Thomas whose telephone number is (571)270-1583. The examiner can normally be reached on Monday-Thursday 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*/Mia M Thomas/*  
Examiner, Art Unit 2624

*/Vikkram Bali/*

Supervisory Patent Examiner, Art Unit 2624